

FIG. 1

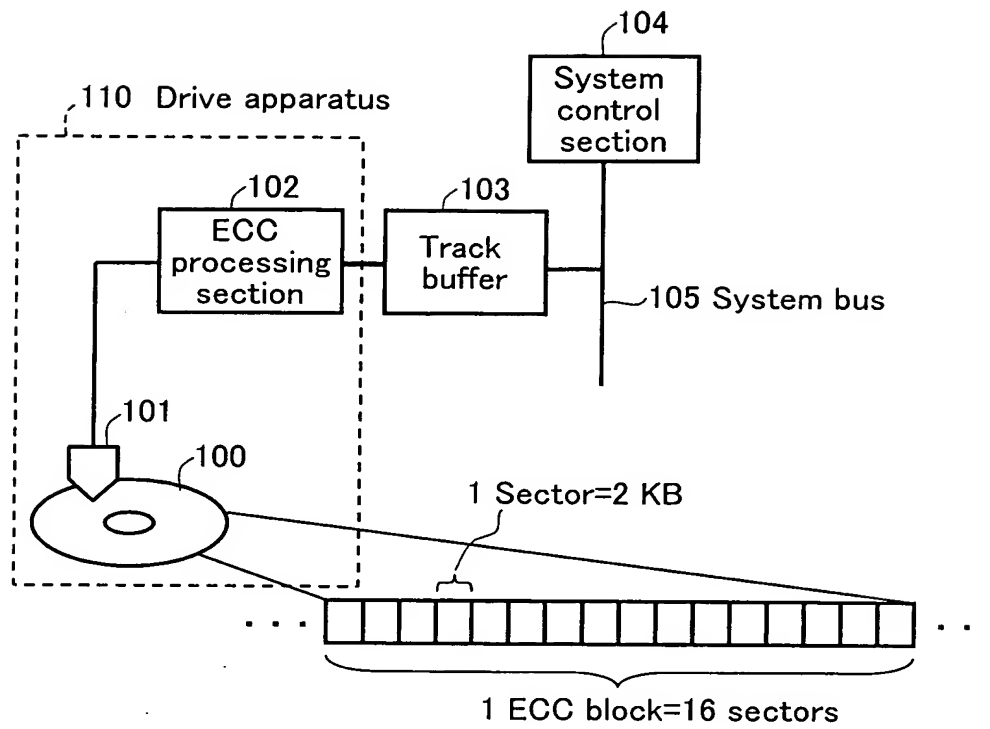


FIG. 2

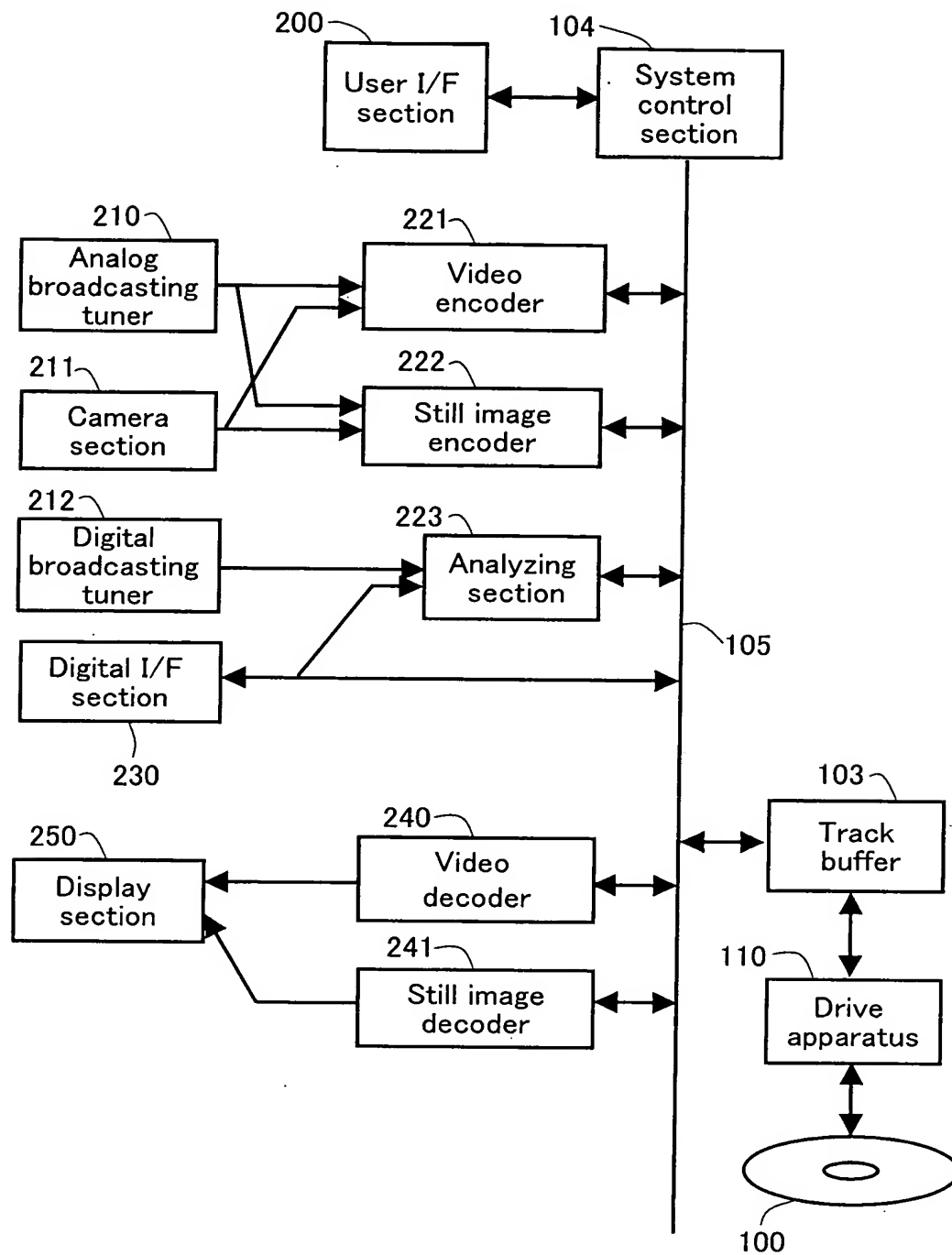


FIG. 3

4/33

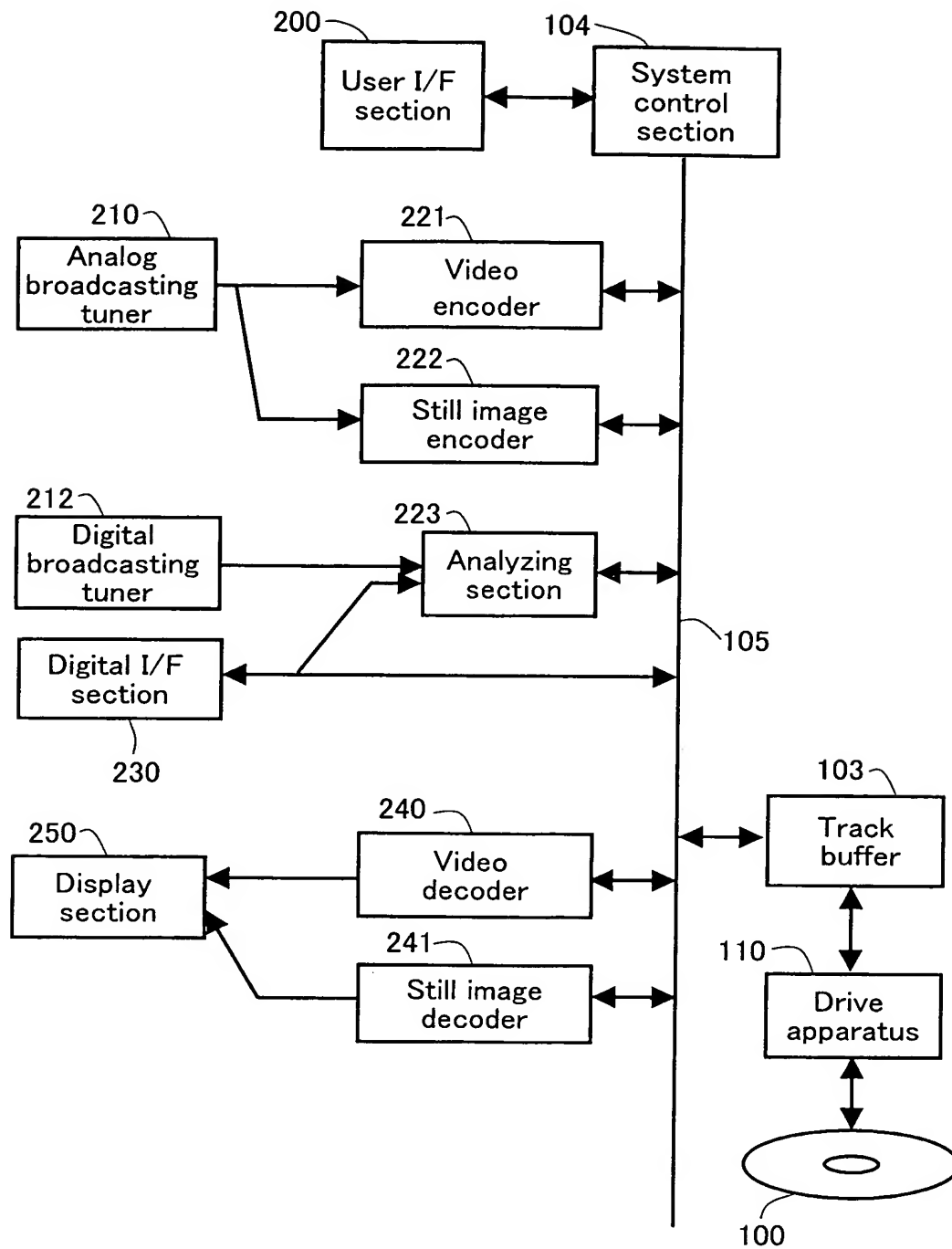


FIG. 4

5/33

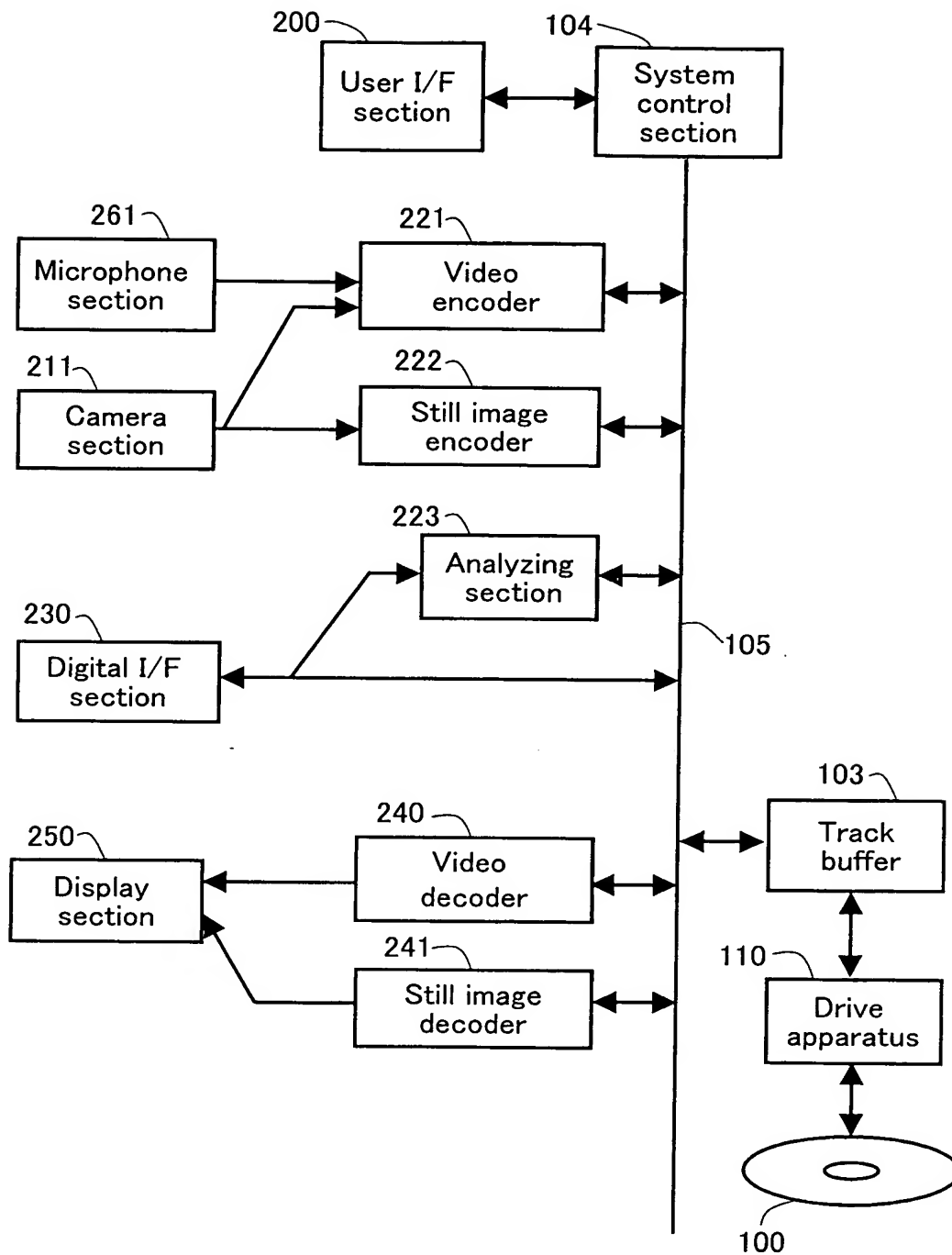


FIG. 5

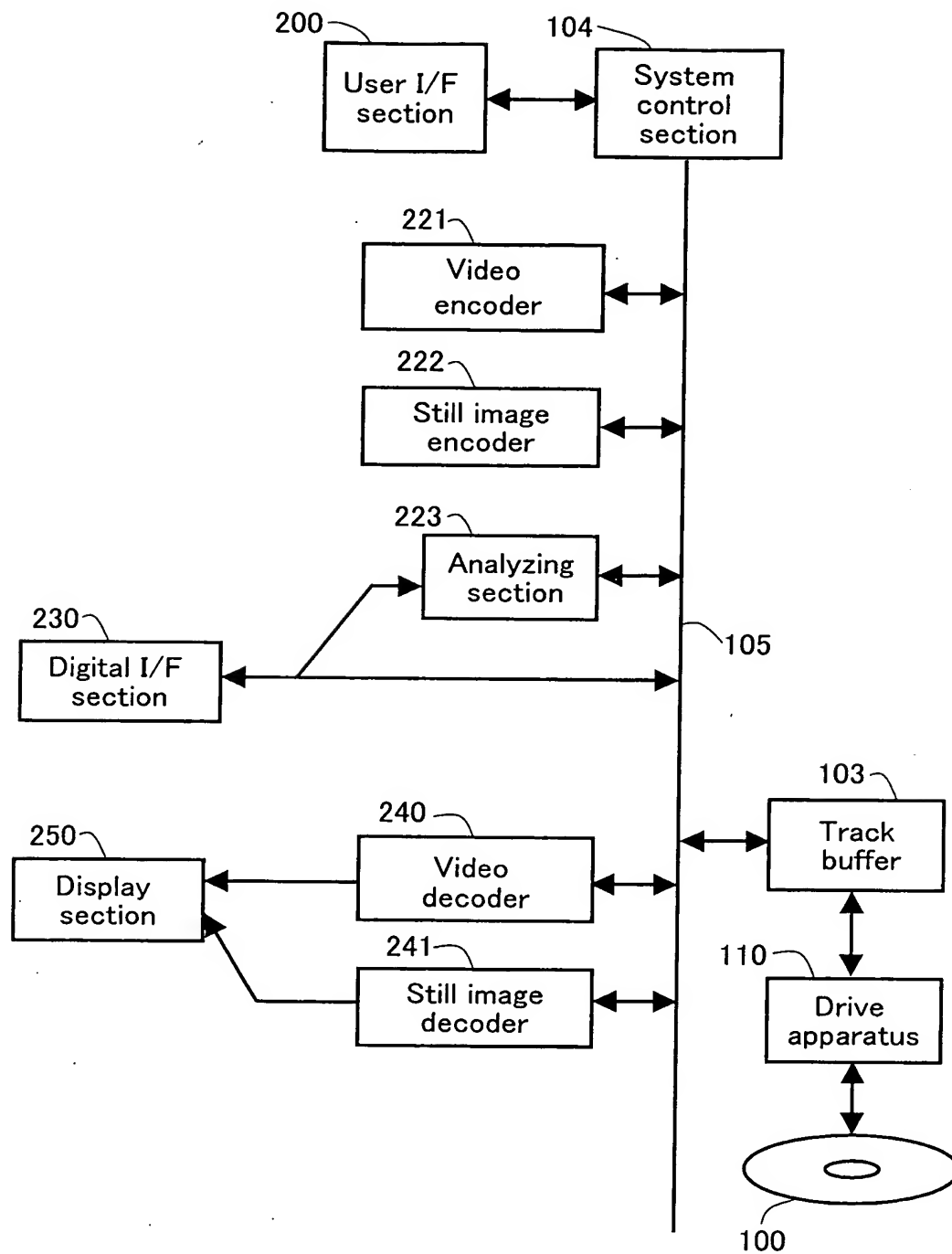


FIG. 6

7/33

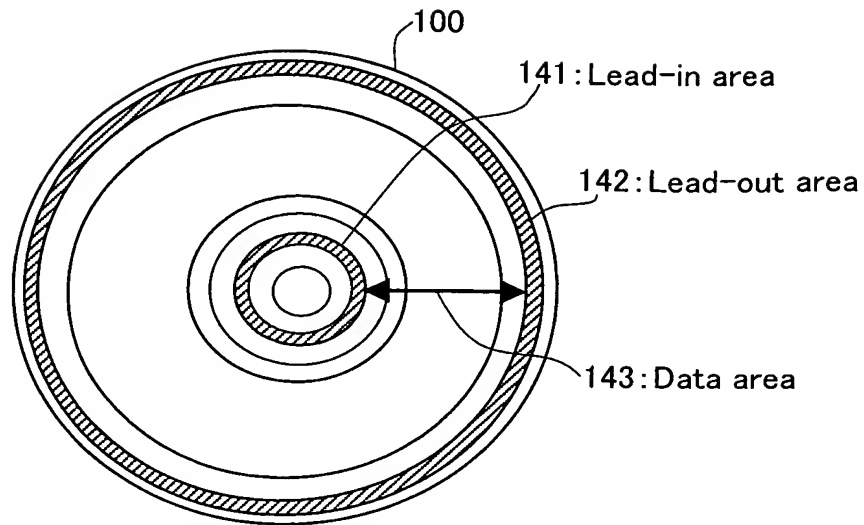


FIG. 7A

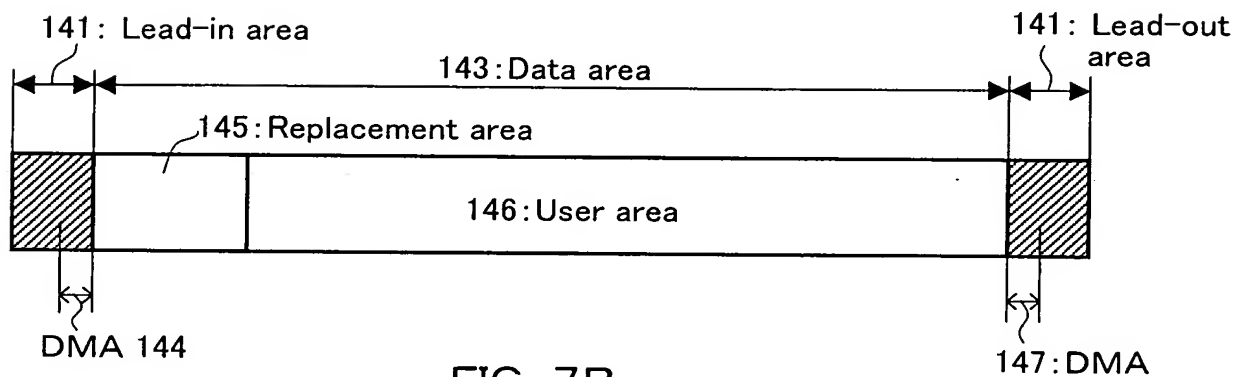


FIG. 7B

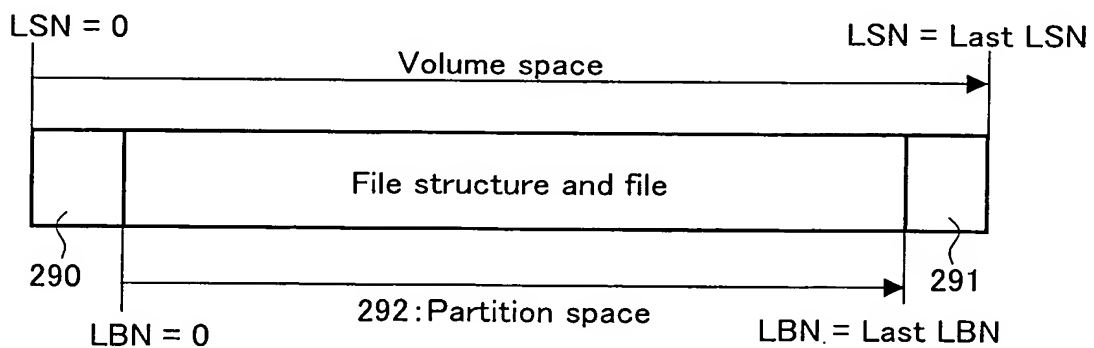


FIG. 7C

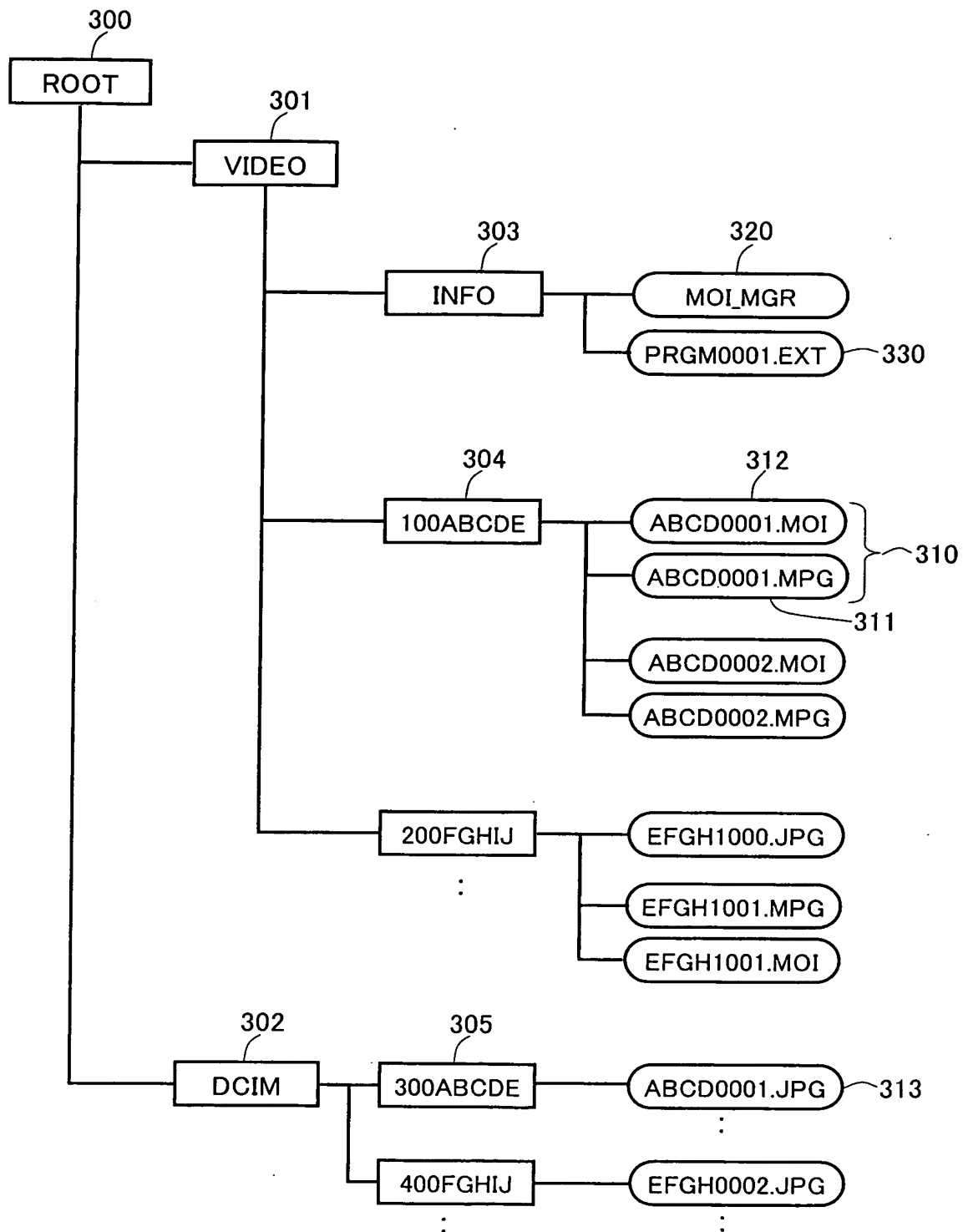


FIG. 8

9/33

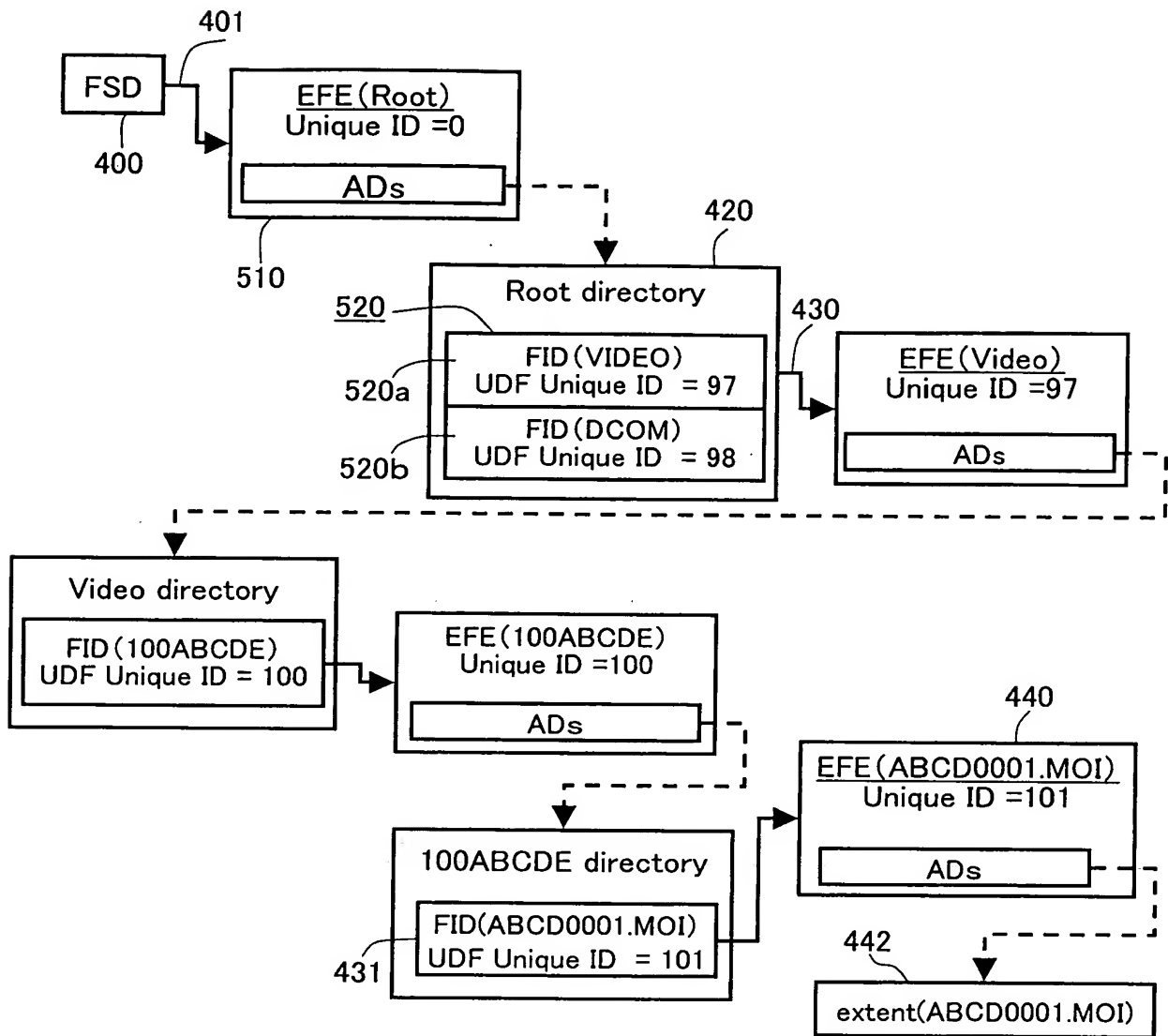


FIG. 9A

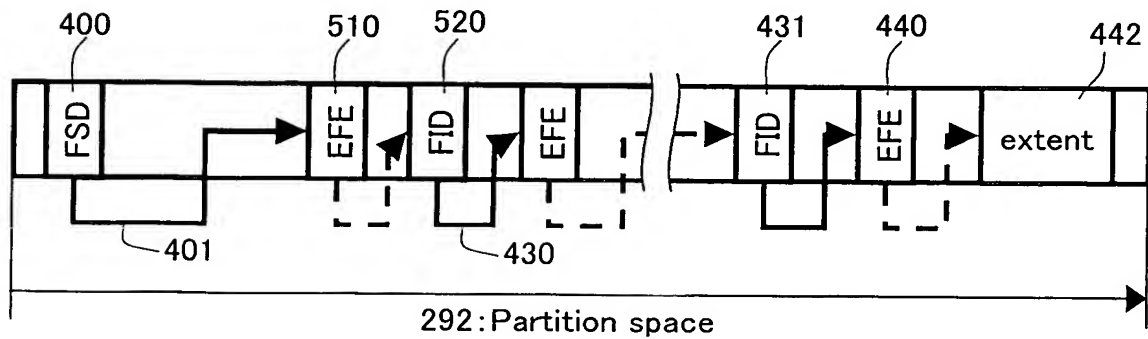


FIG. 9B

## 400: FSD

BP	Length	Field name	Contents
0	16	Descriptor Tag	Tag
...	...	...	...
400	16	Root Directory ICB ~ 501	long_ad
...	...	...	...
464	16	System Stream Directory ICB ~ 502	long_ad
...	...	...	...

FIG. 10A

## 503: Long\_ad

RB	Length	Field name	Contents
0	4	Extent Length	Uint32
4	6	Extent Location	lb_addr
10	6	Implementation Use ~ 504	byte

FIG. 10B

## ADImpUse

BP	Length	Field name	Contents
0	2	Flags	Uint16
2	4	UDF Unique ID ~ 505	Uint32

FIG. 10C

## 510:Extended File Entry (EFE)

BP	Length	Field name	Contents
0	16	Descriptor Tag	Tag
...	...	...	...
152	16	Stream Directory ICB ~ 512	long_ad
...	...	...	...
200	8	Unique ID ~ 511	Uint64
208	4	Length of Extended Attribute (= L_EA)	Uint32
212	4	Length of Allocation Descriptors (= L_D)	Uint32
216	L_EA	Extended Attributes (EAs) ~ 513	bytes
[L_EA+216]	L_AD	Allocation Descriptors (ADs) ~ 514	bytes

FIG. 11A

## 514:Allocation Descriptor (AD)

RBP	Length	Field name	Contents
0	4	Extent Length	Uint32
4	4	Extent Position	Uint32

FIG. 11B

## 520: FID

RBP	Length	Field name	Contents
0	16	Descriptor Tag	Tag
...	...	...	...
18	1	File Characteristics ~ 523	Uint8
19	1	Length of File Identifier (= L_FI)	Uint8
20	16	ICB ~ 522	long_ad
...	...	...	...
[L_IU+38]	L_FI	File Identifier ~ 521	d-character
...	...	...	...

FIG. 11C

Implementation Use Extended Attribute 530

BP	Length	Field name	Contents
0	4	Attribute Type	LB32
4	1	Attribute Subtype	Uint81
5	3	Reserved	00hy bytes
8	4	Attribute Length	LB32
12	4	Implementation Use Length (IU_L)	LB32
16	32	Implementation Identifier	EntityID
48	IU_L	Implementation Use ~ 531	bytes

FIG. 12A

Media Object Management Information 540

BP	Length	Field name	Contents
0	2	Header Checksum	LB16
0	16	MoUniqueID ~ 541	LB32

FIG. 12B

13/33

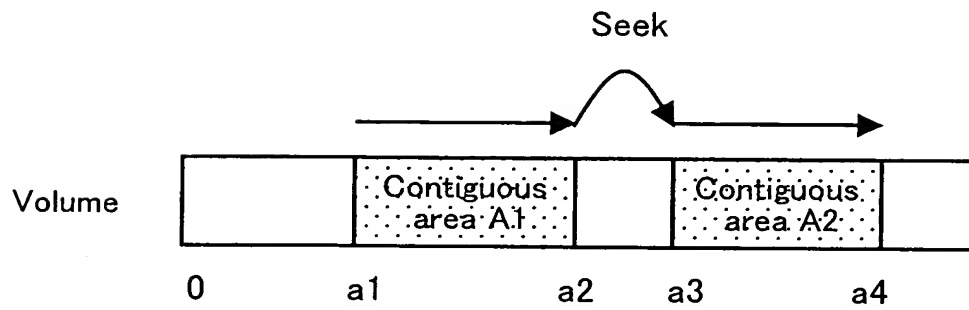


FIG. 13A

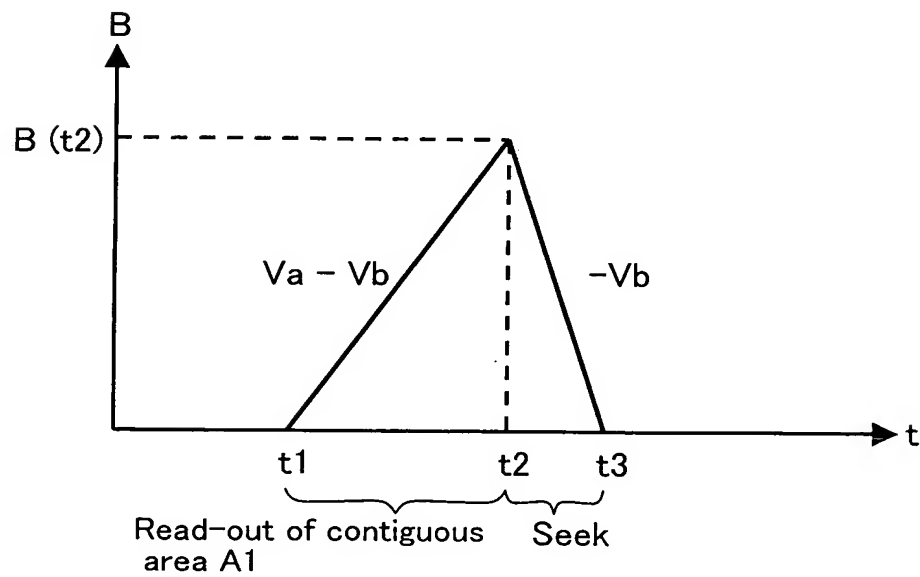


FIG. 13B

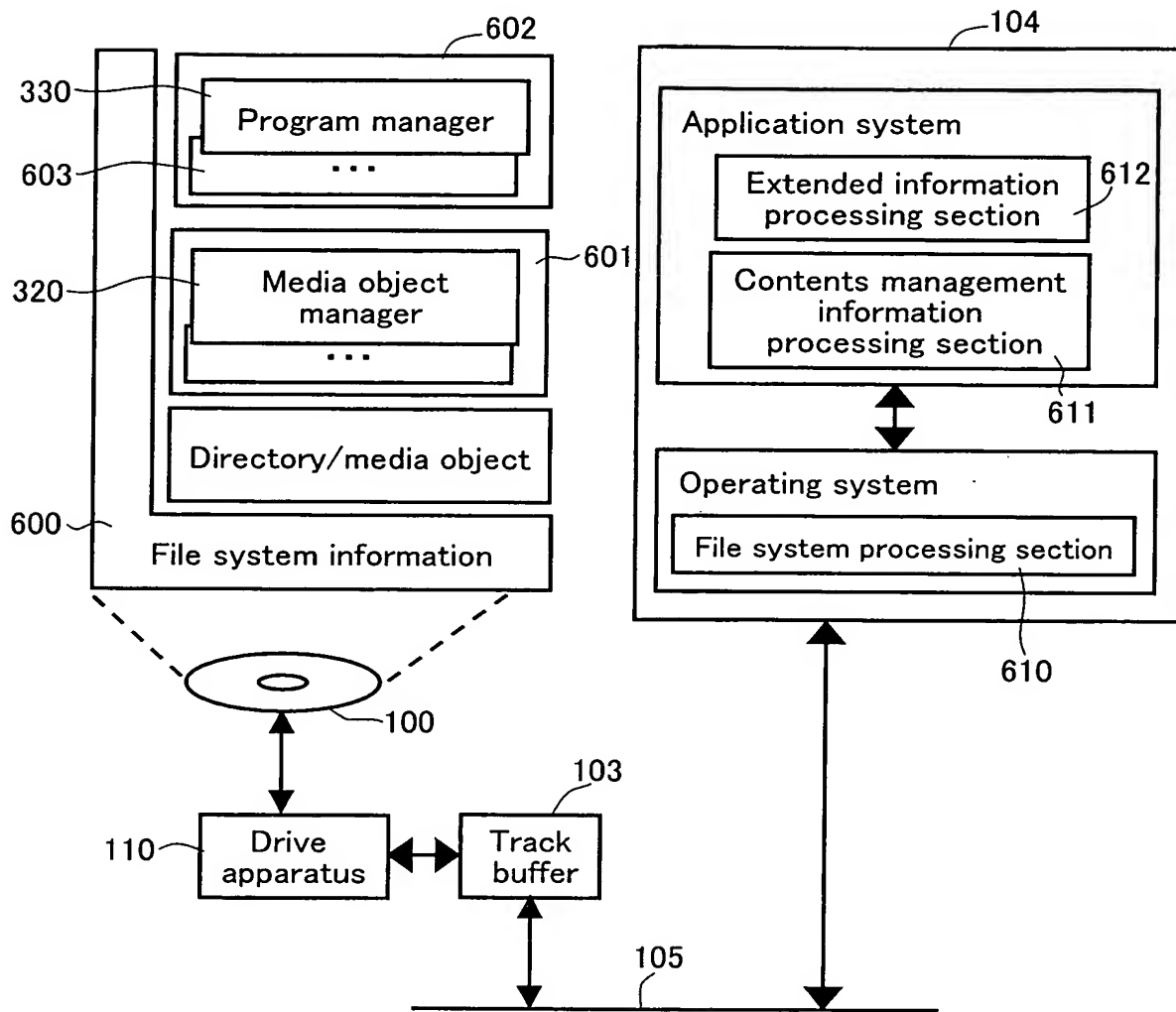


FIG. 14

## Media object manager 320

Field name		Contents
700 Header	const unsigned int(16) DataType	MO_MGR type (fixed value)
	unsigned int(16) DataSize	MO_MGR size
	unsigned int(32) ModTime ~702	Update time
	unsigned int(16) LastMoUniqueID ~703	Value of last used MoUniqueID
	unsigned int(16) TotalNumEoInfo ~704	Extended object management information table ~710
	int i; for (i =0; i <TotalNumEoInfo; i++) { EO_INFO EoInfo ~720 }	
701 Data	unsigned int(16) NumMoInfo	Media object management information table ~730
	int i for (i =0; i <NumMoInfo; i++) { MO_INFO MoInfo ~740 }	

FIG. 15A

## Extended object management information (EO\_INFO) 720

Field name	Contents
unsigned int(16) EoType ~721	Extended object type
unsigned int(16) EoSubtype ~722	Extended object subtype
string EoRef ~723	Reference information to extended object
unsigned int(16) EoFlags ~724	Attribute flag
unsigned int(16) NumRef ~725	Number of references included in extended object
string TextDesc ~726	Character string information

FIG. 15B

## Attribute flag value

Bit	Field name	Interpretation
15b~1b	...	...
0b	Valid	0b: Possibly invalid , 1b: Valid

731

FIG. 15C

## Media object management information(MO\_\_INFO) 740

Field name	Contents
unsigned int(16) MoType ~741	Media object type
unsigned int(16) Attributes	Media object attribute information
OBJ_ID MoRef ~742	Media object reference information
unsigned int(32) MoUniqueID ~743	Media unique ID
unsigned int(32) PlayBackDuration	Reproduction time of media object(ms)
unsigned int(16) TextID ~744	Reference information to text information
unsigned int(16) ThumID	Reference information to representative thumbnail image information

FIG. 16A

## MoType value

Value	Interpretation
1	Directory
2	Video object (extension: MOI)
3	Still image object (extension: JPG)
...	...

FIG. 16B

## OBJ\_ID value

Field name	Interpretation
unsigned int(8) Parent Dir No	0: /VIDEO directory 1: /DCIM directory Others: Reserved
unsigned int(16) Dir No	Numerical portion of upper directory name of media object
unsigned int(16) File No	Numerical portion of file name of media object

FIG. 16C

## Program manager 330

Field name		Contents
800 Header portion	const unsigned int(16) DataType	File type (fixed value)
	unsigned int(16) DataSize	File size
	unsigned int(16) EoType ~ 811	Extended object type
	unsigned int(16) EoSubtype ~ 812	Extended object subtype
	unsigned int(32) ModTime ~ 813	Update time
	string TextDesc ~ 814	Character string information
801 Data portion	unsigned int(32) PlayBackDuration	Reproduction time of entire program (ms)
	unsigned int(16) NumPrgInfo	Number of pieces of program information (PRG_INFO)
	int i; for (i =0; i < NumPrgInfo; i++) { PRG_INFO PrgInfo; }	Program information table ~ 830

820

FIG. 17A

## Program information(PRG\_INFO) 820

Field name	Contents
const unsigned int(16) DataType	PRG_INFO type (fixed value)
unsigned int(16) DataSize	PRG_INFO size
unsigned int(16) Attributes	Program attribute information
OBJ_ID PrgID	Program identification information
unsigned int(32) PlayBackDuration	Reproduction time of program(ms)
unsigned int(16) TextID	Reference information to text information
unsigned int(16) ThumID	Reference information to representative thumbnail image information
unsigned int(16) NumMoInfo	Number of pieces of media object management information (MO_INFO) Included in this program
int i; for (i =0; i <NumMoInfo; i++) { unsigned int(32) MoID; }	Reference table to media object management information

FIG. 17B

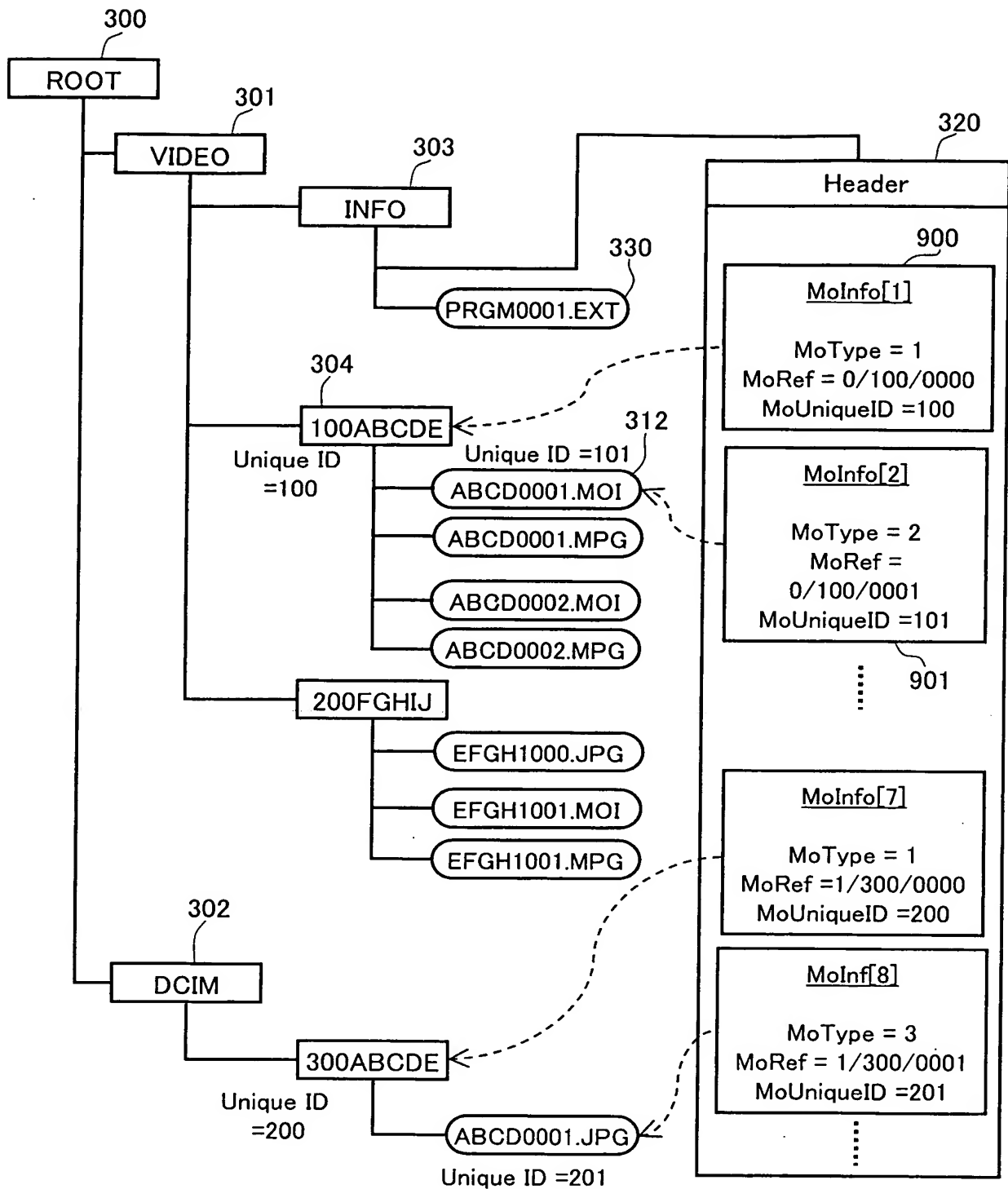


FIG. 18

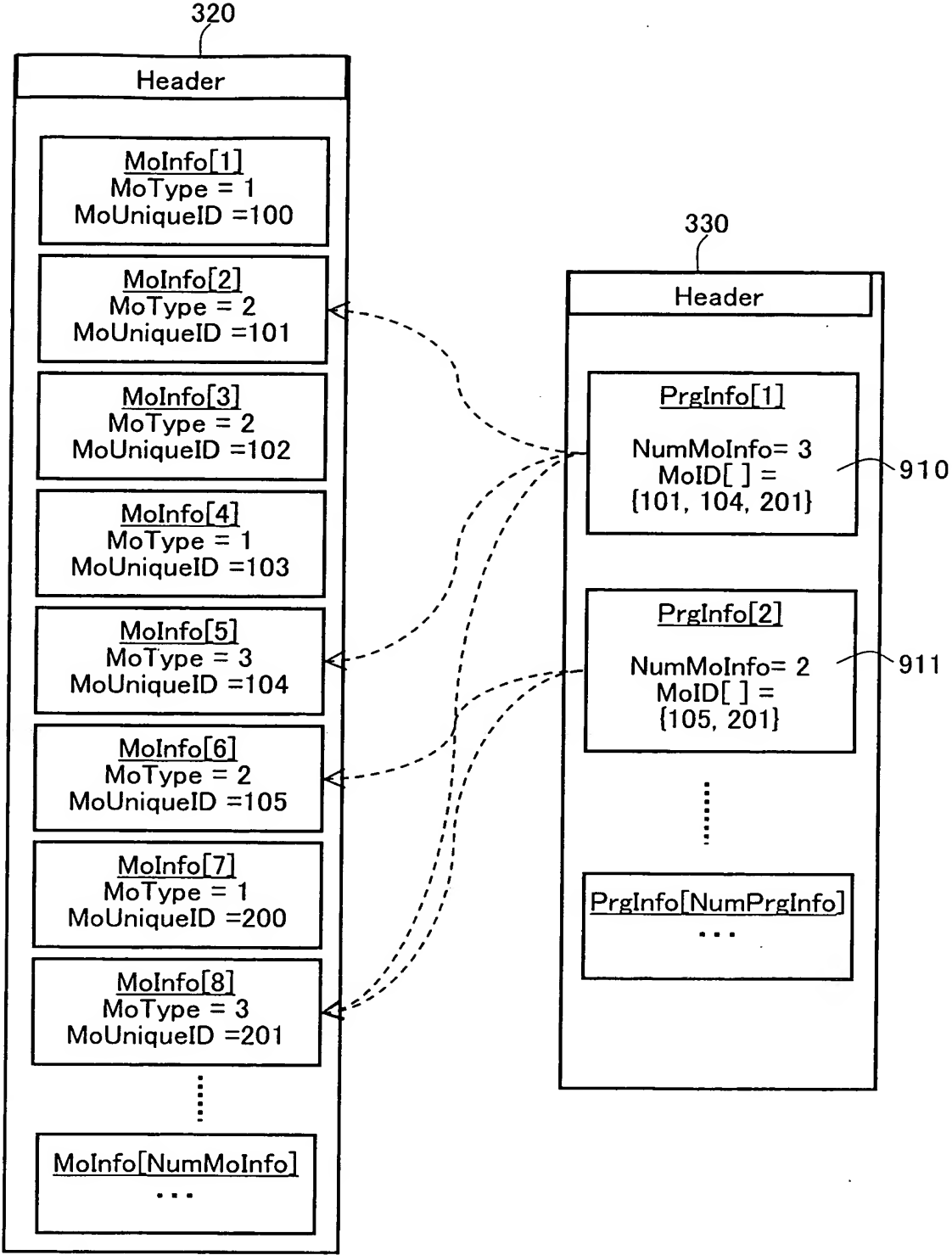


FIG. 19

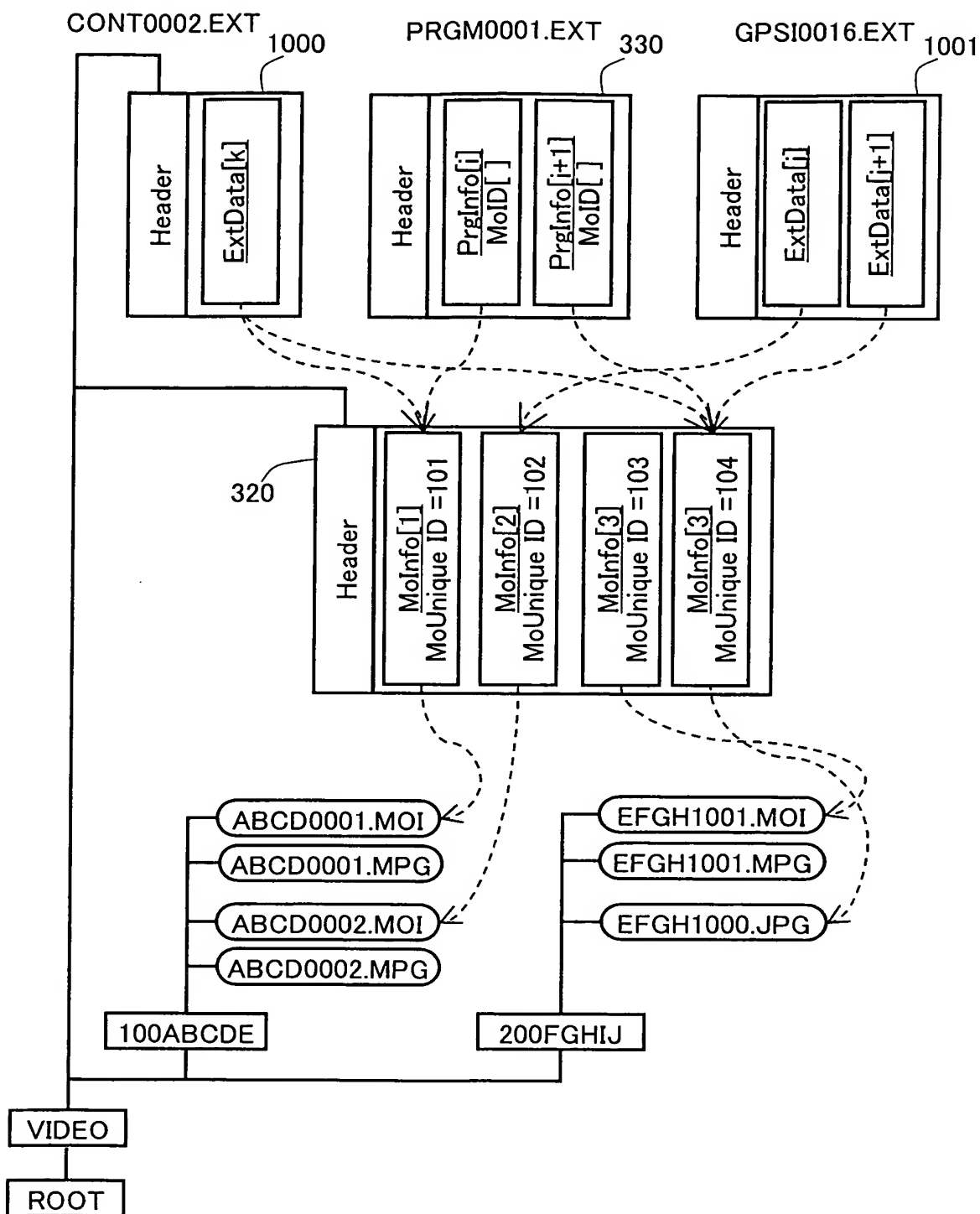


FIG. 20

Exemplary values 1 set in extended object management information table 710

EoType	EoSubtype	EoRef	EoFlags	Text-Description
'pb'	'pg'	PRGM0001.EXT	Valid = 1b	"Programmed reproduction"
'pb'	'cn'	CONT0002.EXT	Valid = 1b	"Number of times of reproduction"
'me'	'gp'	GPSI0016.EXT	Valid = 1b	"GPS Data"
...	...	...	...	...

FIG. 21A

Exemplary values 2 set in extended object management information table 710

EoType	EoSubtype	EoRef	EoFlags	Text-Description
'pb'	'pg'	PRGM0001.EXT	Valid = 1b	"Programmed reproduction"
'pb'	'cn'	CONT0002.EXT	Valid = 0b	"Number of times of reproduction"
'me'	'gp'	GPSI0016.EXT	Valid = 0b	"GPS Data"
...	...	...	...	...

FIG. 21B

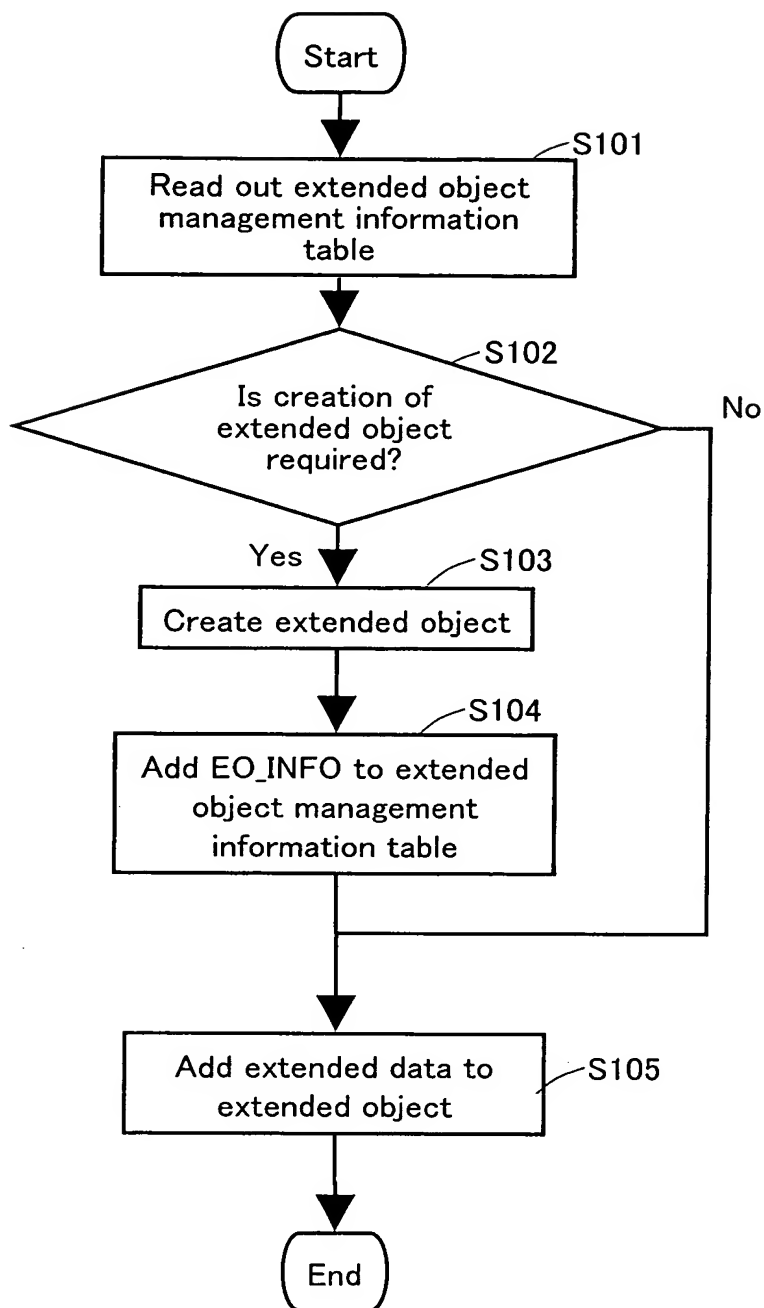


FIG. 22

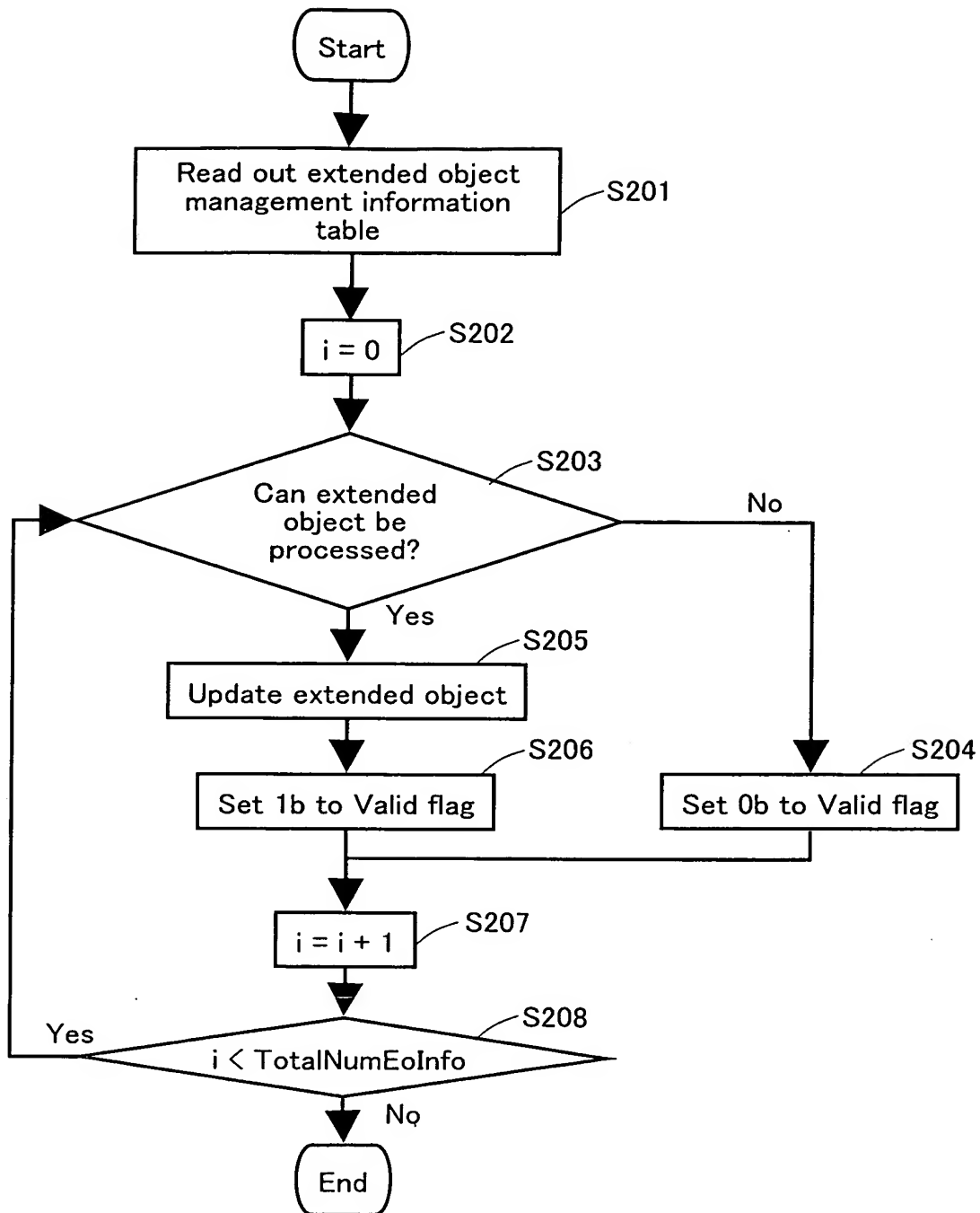


FIG. 23

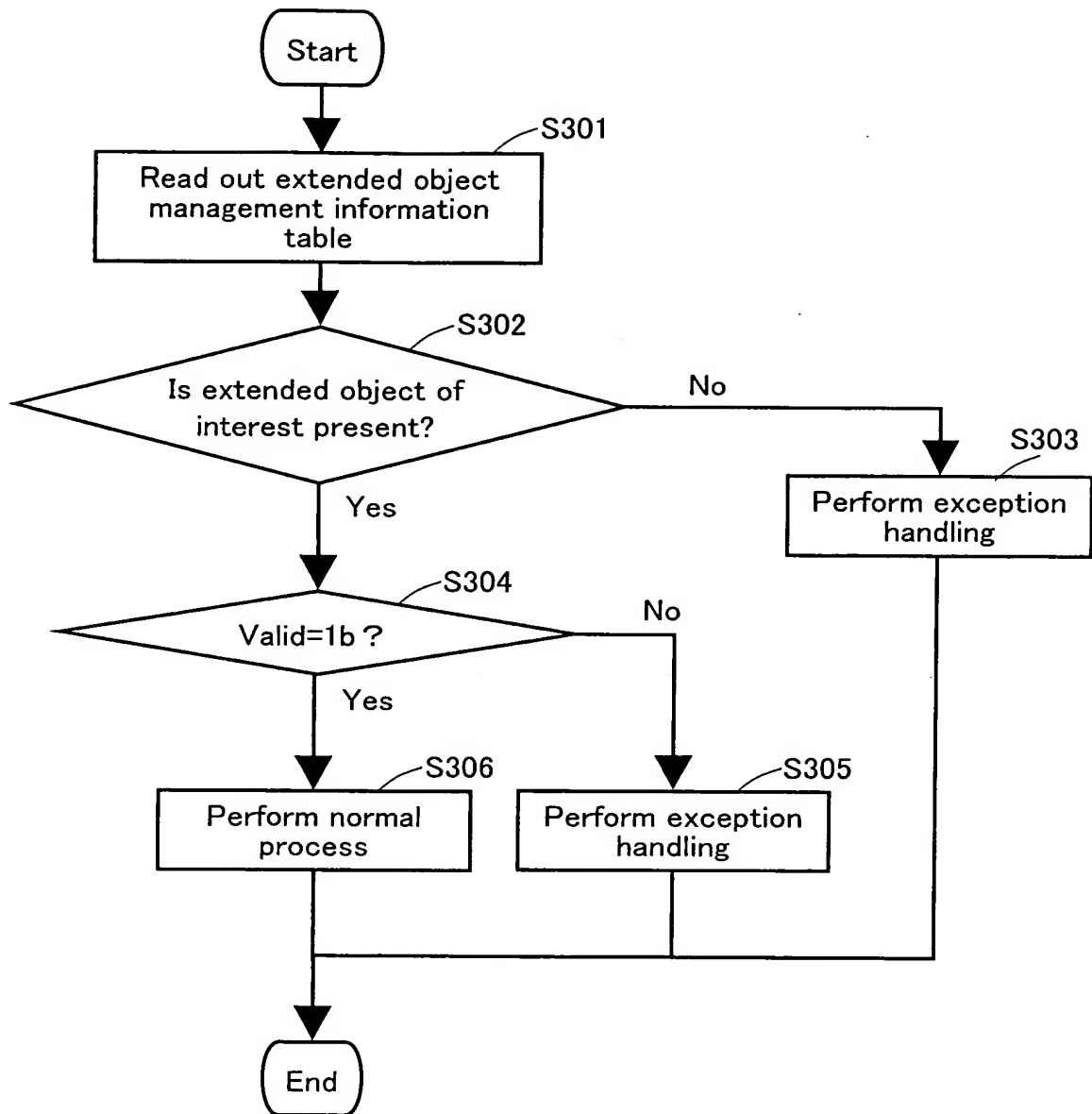


FIG. 24

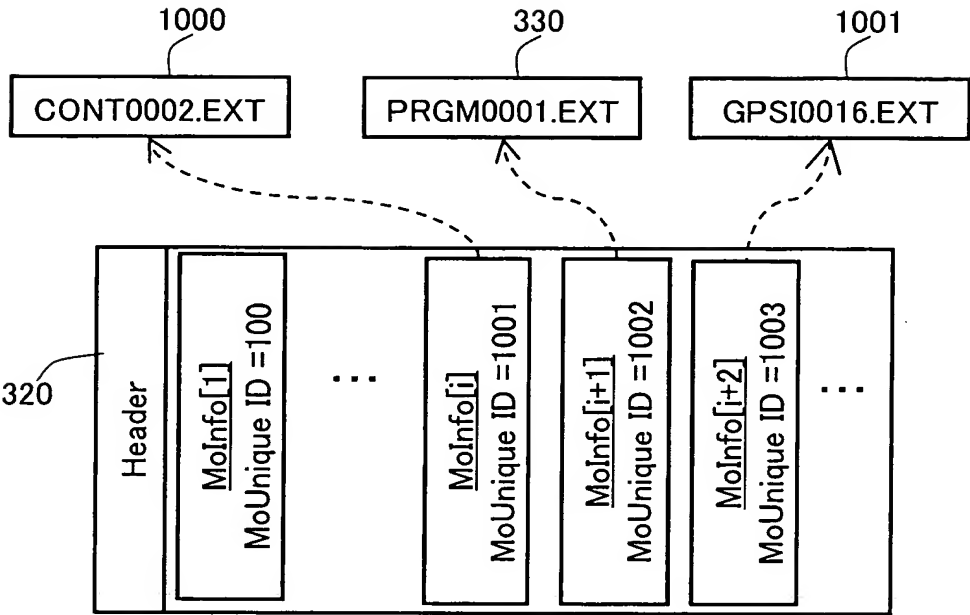


FIG. 25

## Media object management information(MO\_\_INFO) 2000

Field name	Contents
unsigned int(16) MoType	Media object type
unsigned int(16) Attributes	Media object attribute information
OBJ_ID MoRef	Media object reference information
unsigned int(32) MoUniqueID	Media unique ID
unsigned int(32) PlayBackDuration	Reproduction time of media object(ms)
unsigned int(16) TextID	Reference information to text information
unsigned int(16) ThumID	Reference information to representative thumbnail image information
EO_INFO EoInfo	Extended object management information

2100

FIG. 26A

## Extended object management information(EO\_INFO) 2100

Field name	Contents
unsigned int(16) EoType ~ 2101	Extended object type
unsigned int(16) EoSubtype ~ 2102	Extended object subtype
unsigned int(16) EoFlags ~ 2103	Attribute flag
unsigned int(16) NumRef	Number of references included in extended object

FIG. 26B

## Media object management information(MO\_INFO) 3000

Field name	Contents
unsigned int(16) MoType ~741	Media object type
unsigned int(16) Attributes	Media object attribute information
OBJ_ID MoRef ~742	Media object reference information
unsigned int(32) MoUniqueID ~743	Media unique ID
unsigned int(32) PlayBackDuration	Reproduction time of media object(ms)
unsigned int(16) TextID ~744	Reference information to text information
unsigned int(16) ThumID	Reference information to representative thumbnail image information
unsigned int(32) RefValidFlag	Extended data attribute flag

3100

FIG. 27A

## Extended data attribute flag 3100

Bit	File No. of corresponding extended object	Exemplary set values
b0-b1	0001	11b
b2-b3	0002	11b
b4-b5	0003	00b
...	...	...
b30-31	0016	00b

## Interpretation of bit values

## Upper bit:

0b: No referenced extended data is present

1b: Reference extended data is present

## Lower bit:

0b: Extended data is invalid

1b: Extended data is valid

FIG. 27B

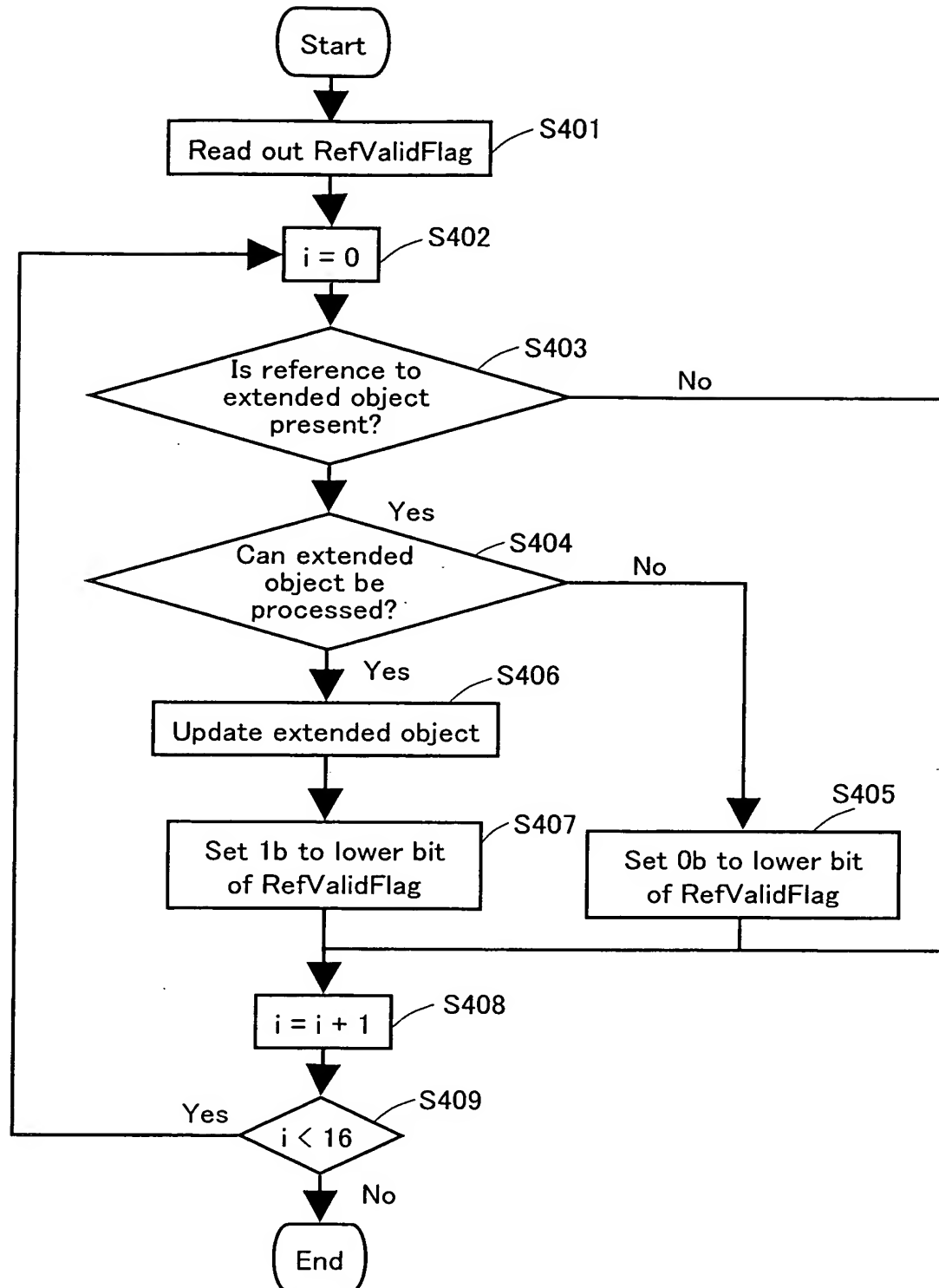


FIG. 28

Extended data attribute flag 3100

Bit	File No. of corresponding extended object	Exemplary set value
b0-b1	0001	11b
b2-b3	0002	10b
b4-b5	0003	00b
...	...	...
b30-31	0016	00b

FIG. 29

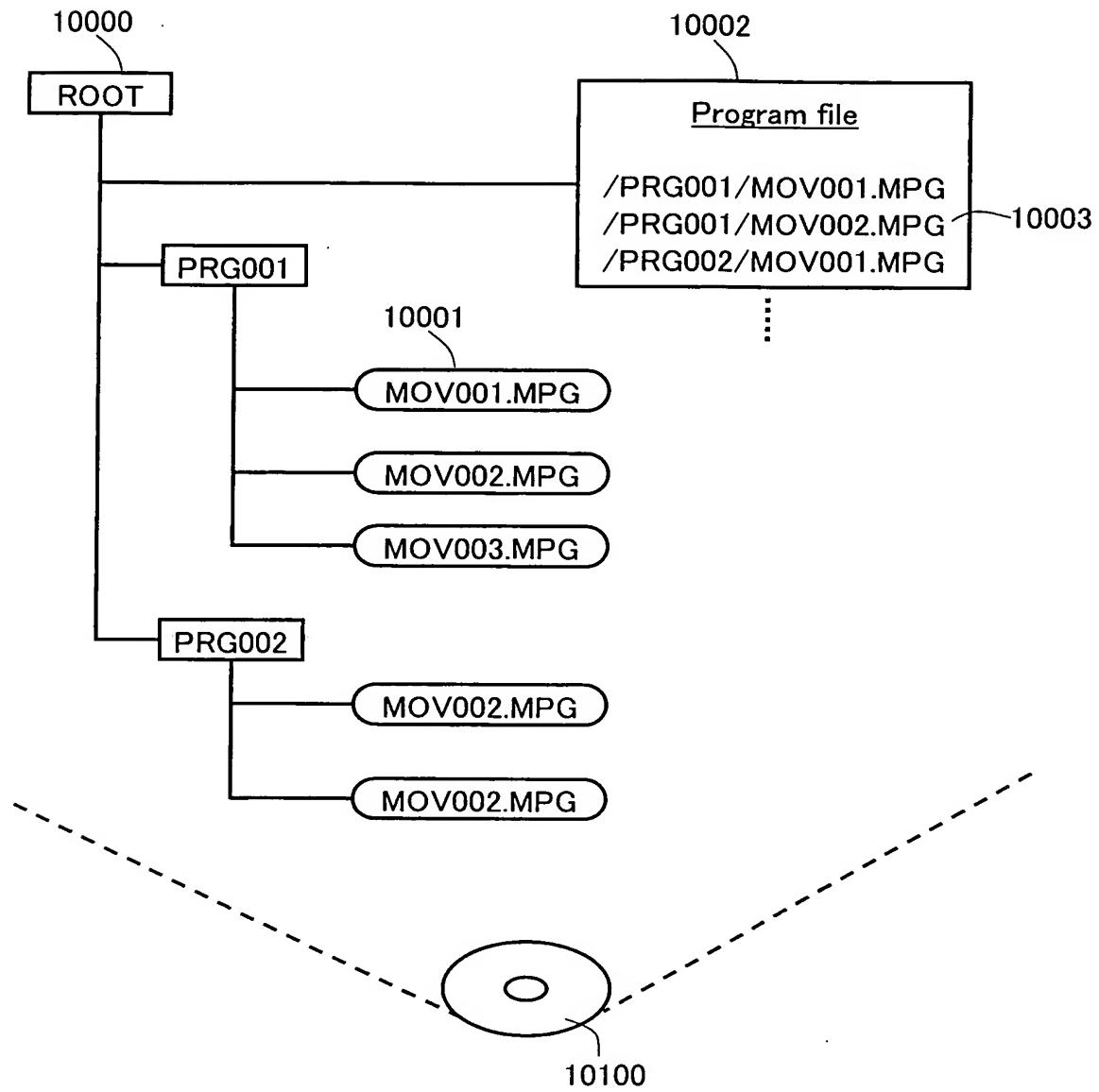


FIG. 30

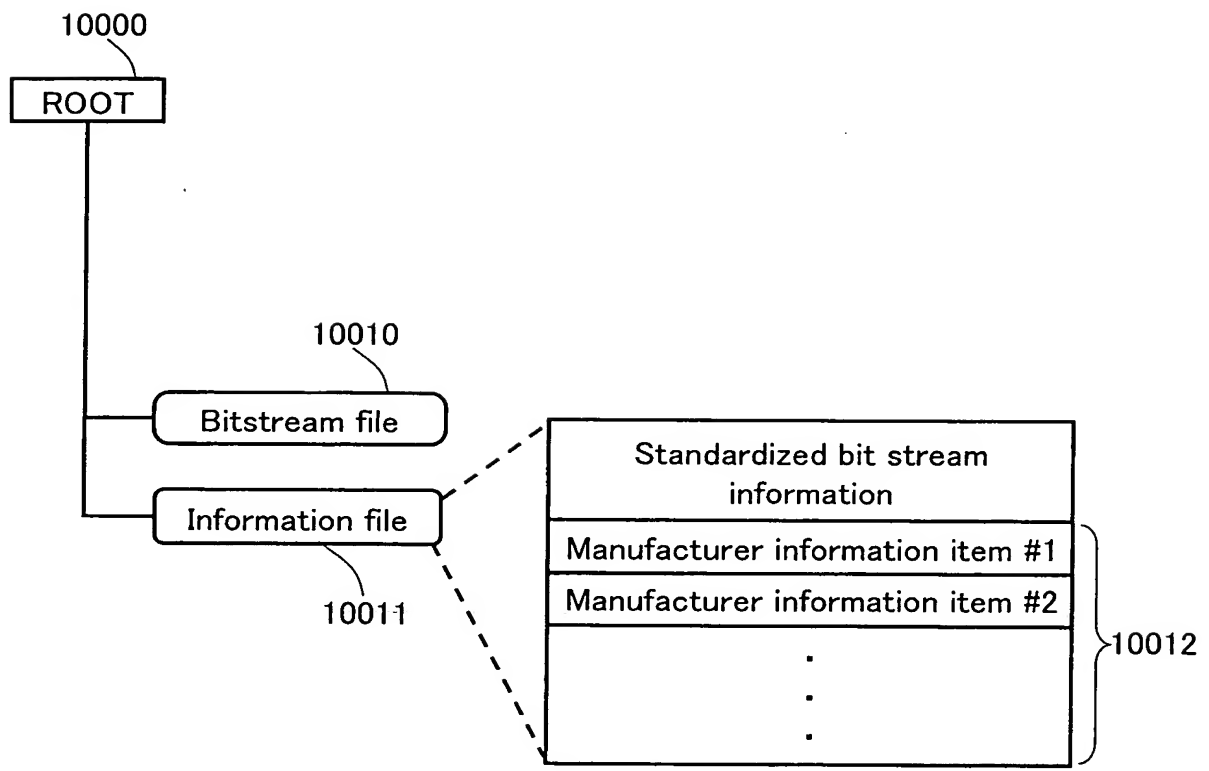


FIG. 31